

P-257

B. Sc. (Biotechnology) Part - III Examination, 2018

BIOTECHNOLOGY

Paper : X

(Plant Biotechnology)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *all* questions from *Section – A* (Objective type questions), *seven* questions from *Section – B* (Short answer type questions) and *two* questions from *Section – C* (Long- Essay type questions).

SECTION – A

[Marks : 1 × 10 = 10

1. Somatic Hybridization is achieved through :
(a) Grafting (b) Protoplast Fusion
(c) Conjugation (d) Recombinant DNA technology
2. The enzymes required to obtain wall-free-naked protoplasts are :
(a) Cellulase and proteinase (b) Cellulase and pectinase
(c) Cellulase and amylase (d) Amylase and pectinose
3. The ability of the component cells of callus to form a whole plant is known as :
(a) Redifferentiation (b) Dedifferentiation
(c) Either (a) or (b) (d) None of these
4. Protoplast are the cells devoid of :
(a) Cell membrane (b) Cell wall
(c) Both (a) and (b) (d) None of these
5. Cry genes or Bt genes are obtained from :
(a) Cotton pest (b) Tobacco plant
(c) Bacillus thuringiensis (d) E. Coli

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6. The part of cotton producing pure cellulose is :
- (a) Root hair (b) Leaf hair
(c) Seed hair (d) Stem hair
7. The size of the virulent plasmid of *Agrobacterium tumefaciens* is
- (a) 40-80 kb (b) 80-120 kb
(c) 140-235 kb (d) 235 kb
8. Emasculation is concerned with :
- (a) Hybridization (b) Clonal selection
(c) Mass Selection (d) Pure line selection
9. Virus free plants can be obtained through :
- (a) Antibiotic treatment (b) Bordeaux mixture
(c) Root tip culture (d) Shoot tip culture
10. Western Blotting is a technique employed for identification of :
- (a) mRNA (b) DNA fragment
(c) tRNA (d) Protein

SECTION - B

[Marks : 7 × 5 = 35

1. What do you mean by In-vivo Gene banks and In-vitro Gene banks ?
2. "The *Agrobacterium* is considered as Natural Genetic Engineer of plants." Comment.
3. Differentiate between functional and structural Genomics.
4. Explain Totipotency in brief.
5. Write short notes on :
 - (a) Rh Factor
 - (b) Atavism
6. Write note on Auxin.
7. Note on Callus Culture.
Define Somatic hybridization.

(2)

9. Define Cryopreservation.
10. Note on single cell suspension.

SECTION - C[Marks : $10 \times 3 = 30$]

1. Explain in brief :
 - (a) Edible vaccins
 - (b) Insects Resistance
2. Explain Secondary Metabolites.
3. Explain :
 - (i) Application of Genetic transformation
 - (ii) Meristem Culture
4. Write short note on :
 - (i) Fertilization
 - (ii) Molecular Markers
5. Explain :
 - (a) Elicitors Immobilized cells
 - (b) Biotrans formation